

**REMARKS**

Applicant thanks the Examiner for the thorough consideration given the present application. Claims 1-8 are pending and have been amended. Claims 1 and 2 are independent. Reconsideration of this application, as amended, is respectfully requested.

**Claim for Priority**

The Examiner has acknowledged Applicant's claim for priority and receipt of the certified copy of the priority document. No further action is required at this time.

**Notes/Remarks**

The Examiner's comment regarding use of the word "stem" is acknowledged. The specification has been amended at page 6, line 21, to read "stem (or base) 506b", and the claims have been amended to replace "stem" with --base-- in all occurrences.

**Drawings**

The drawings are objected to on the grounds that FIGS. 5-7 are not designated by a legend such as "Prior Art". Attached are revised formal drawings in which FIGS. 5-7 have been identified as "Related Art". It is respectfully submitted that the revised formal

drawings comply with USPTO requirements, and withdrawal of the objection to the drawings is respectfully requested.

**Title**

The disclosure is objected to on the grounds that the title is not sufficiently precise or descriptive. The title has been amended to read, "OPTICAL HEAD WITH PASSIVE TEMPERATURE COMPENSATION". It is respectfully submitted that the amended title complies with USPTO requirements, and withdrawal of the objection to the disclosure is respectfully requested.

**Rejection under 35 U.S.C. §103(a)**

Claims 1-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 09-312033 (Koki) in view of U.S. Patent No. 6,243,350 to Knight et al. Applicant respectfully traverses this rejection.

The Office Action refers to the present specification rather than Koki, since the contents of Koki are described in the "DESCRIPTION OF THE RELATED ART" section of the present specification. Therefore, for consistency, the following discussion of Koki also refers to the description of the present specification.

▪ Claim 1

Claim 1 recites, in part, "a material of the base and a wavelength of the light from the light source are selected so that a distance of movement of the focal point on the light detector is a direction perpendicular to the second direction is within a prescribed tolerance limit".

The Examiner contends that this aspect of the invention is taught by Knight, pointing to column 22, line 54, through column 23, line 33, and FIGS. 20A and 20B. Even if this were true, which Applicant rejects, M.P.E.P. §2143.03 states that to establish a *prima facie* case of obviousness, all claim limitations must be taught or suggested by the cited art, and Knight fails to do so.

For example, claim 1 clearly states that the wavelength of light from the light source may be selected as part of the thermal compensation scheme. This has the advantage of increasing the number of parameters available in designing the temperature compensation of the apparatus.

Knight discloses that the laser wavelength may shift with temperature and can affect performance. See column 22, lines 37-39. Knight also describes how the thermal and mechanical properties of mounting devices and the dispersion properties of optical elements

may be chosen so as to minimize the negative impact on performance associated with temperature change.

However, Knight offers no indication that the wavelength of light may be chosen so as to reduce the effect of temperature on performance, nor does Knight teach or suggest that the wavelength of the light itself at standard operating temperature may be used as a parameter for temperature compensation.

Independent claim 1 further recites that a "distance of movement of the focal point on the light detector in a direction perpendicular to the second direction is within a prescribed tolerance limit".

This has the advantage of providing an accurate focusing error signal, thus providing a satisfactory information reproduction signal leading to improved reliability of the optical pickup apparatus. See page 39, lines 15-20, of the present specification.

Knight describes a passive thermal compensation system designed to minimize overall thermal variation of the optical train. See Knight, column 22, lines 59 and 60.

However, the passive thermal compensation of the present invention, and particularly as recited in claim 1, is directed to maintaining temperature-induced movement perpendicular to a second direction within a prescribed tolerance limit, where the second

direction is defined as a dividing line between two regions of a light receiver.

The thermal compensation scheme disclosed by Knight is directed to compensating for different properties from the present invention. Knight does not describe any relationship between the focusing error signal and thermal correction. As such, Knight does not teach or suggest the above-noted aspects of the present invention.

Furthermore, neither Koki nor any other reference cited in the Office Action teaches or suggests the above-described features of the present invention, and there is no indication that these features would be known to one skilled in the art. As such the invention of claim 1 would not be obvious to one of ordinary skill in the art, and independent claim 1 and the claims depending therefrom are novel and unobvious.

▪ **Claim 2**

Claim 2 recites that "the second direction is inclined so that when the focal point on the light detector moves while having a component of the direction perpendicular to the second direction because of a change in the wavelength of the light emitted by the light source and expansion or contraction of the base, which are both caused by a temperature change". The second direction is

defined by the dividing line between the at least two regions of the light receiver.

The advantage of this feature is that it provides an optical pickup apparatus for accurately recording and/or reproducing information even when the temperature changes. See page 15, lines 4-7, of the present specification.

The Examiner makes no reference to this feature in rejecting claim 2. In fact, the rejection of claim 2 repeats the rejection of claim 1, but takes no notice of the above-stated feature.

Neither Koki nor Knight describes inclining the second line so as to maintain the movement of a focal point perpendicular to a second line within a prescribed tolerance, where such movement is caused by a temperature-induced change in wavelength and expansion or contraction of a base.

Furthermore, as noted with respect to claim 1, the thermal compensation of Knight is directed to minimizing overall thermal variation of an optical train, not to reducing the change in light incident on first and second regions of a light detector to within a prescribed tolerance limit. Knight, in fact, is silent about the division of light detectors into regions and the orientation thereof.

As there is no evidence of these features in either of the applied references, or any of the references cited by the Examiner, it is respectfully submitted that that independent claim 2 is novel and unobvious. Accordingly, independent claim 2 and the claims depending therefrom should be allowable.

### CONCLUSION

It is respectfully submitted that Knight and Koki fail to disclose or render obvious the present invention as set forth in independent claims 1 and 2. Accordingly, reconsideration and withdrawal are requested of the rejection under 35 U.S.C. §103(a). Independent claims 1 and 2 are believed to be allowable. Since the remaining claims depend directly or indirectly from these allowable independent claims, they should also be allowable for at least the reasons set forth above, as well as for the additional limitations provided thereby. Therefore, all pending claims should be in allowable.

Should any issues remain, however, the Examiner is invited to telephone Daniel K. Dorsey (Reg. No. 32,520) at (703) 205-8000 in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

required under 37 C.F.R. §§1.16 or 1.17, particularly extension of  
time fees.

Respectfully submitted,

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